

R&D Scoping and Framing Workshop  
*R&D Roadmap: Managing Western Water as Climate Changes*  
February 20 and 21, 2008

General Consolidated Summary  
Responsibilities, Challenges, and Needs  
Perspectives of Reclamation Environmental Compliance and Ecosystem Restoration Managers

Note: The information presented herein is intended solely to facilitate a working level dialogue between the federal scientific community, and Reclamation water and environmental resource managers, on climate change research needs in support of Western water management. As such, *“this information has not been formally disseminated by the Bureau of Reclamation and should not be construed to represent any agency determination or policy”*.<sup>(1)</sup>

## **Environmental Compliance and Ecosystem Restoration Management Responsibilities**

- Restore, enhance, provide, or maintain, aquatic or riparian habitat, principally for threatened and endangered species (e.g., salmon, steelhead, bull trout, pike minnow, humpback chub, pallid sturgeon, willow flycatcher, piping plover, whooping crane) and waterfowl to comply with environmental laws, legislation, and court rulings.
- Prevent the spread of aquatic and riparian invasives, remove them, and restore habitat.
- Decide where to invest limited resources for restoration based on expected future conditions.
- Manage stream flows for water temperature, habitat, and passage
- Facilitate fish access to presently inaccessible habitat
- Restore spawning, rearing, migration, and other important habitats.
- Manage peak flows, sediment transport, and geomorphology
- Restore channels and associated habitats
- Restore wetlands
- Restore and maintain native vegetation types

## **Research and Development Needs**

### **Environmental Impacts of Climate Change**

- Climate impacts on threatened and endangered species
- Climate impacts on species-relevant indicators, e.g. flow volumes and timing, reservoir levels, temperature regimes and stratification, and other biologically-important river, riparian, and reservoir characteristics.
- Climate impacts on watershed landscapes, e.g. fire, sedimentation, runoff, invasives, groundwater.
- Climate impacts on the biology/productivity of oceans, estuaries, river systems
- Climate change triggering new species listings
- Opportunities for reducing impacts of climate change on species and habitats.
- Reclamation operations' effects on climate?

### **Social/Economics Impacts**

- Predictions of climate impacts on the broader human environment

<sup>1/</sup> Stated in accordance with Information Quality Act (Public Law 106-554), Final Information Quality Bulletin for Peer Review (Office of Management and Budget, December 16, 2004).